

# **A Blueprint For a Challenge**

*Creating a Classroom “Problem to Solve”*



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Knowledge Standard

**ACADEMIC CHALLENGE**  
(Student Copy)

Skill/Disposition Standard

Understands and applies scientific concepts

**Organization** – optimizes time and resources

Essential Knowledge/ Question(s)

How are whales *adapted* to their environment?

Challenge:

With the help of your teacher, arrange yourselves into well-balanced teams of three (3). Plan and create a colorful, informative, easy-to-understand bulletin board display of your own unique design about a particular whale species that interests you. Your display should reveal accurate information in response to each of the following focus questions:

- (1) What is your whale species ‘like’ (its unique *physiology*)?
- (2) What does your whale species ‘do’ (its unique *behaviors*)?
- (3) Where in the ocean does your whale live; what *environmental conditions* exist there?
- (4) How do you think the three questions above might be related?

To assist in your planning of this project, please hand in a project planning sheet at the end of today showing the work schedule for each member of the team for the remainder of the week. You are expected to implement this plan.

Product criteria:

Your team will have three class periods to prepare your bulletin board. Be prepared to present your final product on **Friday, 2.00pm**. All members of the team will be expected to be able to answer questions about your bulletin board and whale species.

**Bulletin Board**  
**Rule Criteria**

**Form Criteria**

**Content Criteria**

Process criteria:

**Skill/Disposition Targeted: Organization**

**Key Attributes/Performance Criteria**

Skill

Optimizes time and resources

Disposition

**Specific Observable Behaviors:**

Knowledge Standard  
**MST/4** –understand and apply scientific concepts, principles, & theories pertaining to the physical setting and living environment  
**Intermediate** – Living Environment /5  
- organisms maintain a dynamic equilibrium that sustains life

**ACADEMIC CHALLENGE**  
**Middle School**  
Science  
(Teacher Copy)

Skill/Disposition Outcome  
**Standard 3a** – mastery of a foundation skill essential for success in the workplace.  
**Managing Resources/Intermediate /7**  
- applies financial, and human factors, and the elements of time and materials to successfully carry out a planned activity.

Essential  
Knowledge/  
Question(s)

How are whales *adapted* to their environment?

Challenge: With the help of your teacher, arrange yourselves into well-balanced teams of three (3). Plan and create a colourful, informative, easy-to-understand bulletin board display of your own unique design about a particular whale species that interests you. Your display should reveal accurate information in response to each of the following focus questions:

- (5) What is your whale species ‘like’ (its unique *physiology*)?
- (6) What does your whale species ‘do’ (its unique *behaviors*)?
- (7) Where in the ocean does your whale live; what *environmental conditions* exist there?
- (8) How do you think the three questions above might be related?

To assist in your planning of this project, please hand in a project planning sheet at the end of today showing the work schedule for each member of the team for the remainder of the week. You are expected to implement this plan.

Your team will have three class periods to prepare your bulletin board. Be prepared to present your final product on **Friday, 2.00pm**. All members of the team will be expected to be able to answer questions about your bulletin board and whale species.

Product  
criteria:

**Bulletin Board**

**Rule Criteria**

- Completed by Friday, 2.00pm
- Colorful – 3-5 different colours are used effectively
- Design of the bulletin board is unique – does not look exactly like any other team

**Form Criteria**

- Informative – gives viewer important information about the subject
- Easy-to-understand – audience can accurately interpret information

**Content Criteria**

- Each focus question is addressed directly
- All information about the whale species is accurate
- Focus ‘concepts’ (*behavior, physiology, environment, adapted etc*) used appropriately
- Reveal ‘connections’ among physiology, behaviour and environment of whale.

**Skill/Disposition Targeted: Organization**

Process  
criteria:

**Key Attributes/Performance Criteria**

optimizes time and resources

Skill

**Specific Observable Behaviors:**

- each team will submit and implement a project planning sheet detailing the work schedule for each member during the week.

Disposition

<b>Product Quality Checklist/K-C</b>
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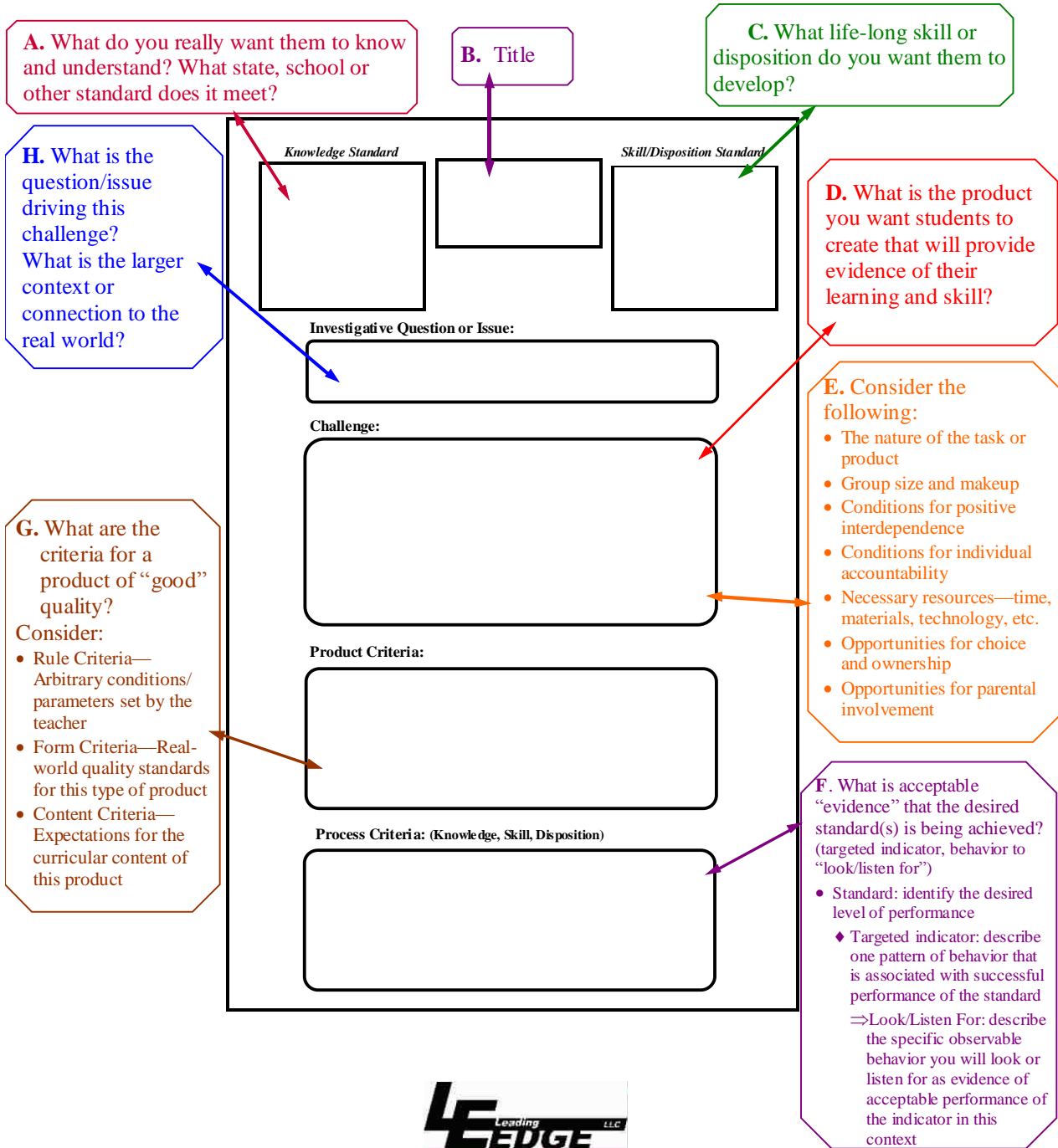
Date: \_\_\_\_\_ Class Period: \_\_\_\_\_

Product Author(s):	Product Title/Name: <b>Whale Bulletin Board</b>	Evaluator Name(s):
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Observed	We will know the <u>Bulletin Board</u> is of high quality if...	Possible Points	Rating
	<u><b>Form criteria</b></u> Colorful – 3-5 different colors are used effectively		
	Informative – gives audience important information about the subject		
	Easy to understand – most viewers can accurately interpret information just by looking at the bulletin board		
	Design of the bulletin board is unique – it does not look exactly like that of any other team		
	<u><b>Content criteria</b></u> Each focus question is addressed directly		
	All information is accurate		
	Reveals “connections” among physiology, behavior, and environment of whale		
	Focus concepts (behavior, physiology, environment, etc.) are used appropriately		
	<i>TOTALS</i>		

<b>Product features to KEEP...</b>	<b>Product features to consider for CHANGE...</b>
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## Annotated Blueprint for a Challenge



## **IDEAS FOR CREATING CONDITIONS OF *POSITIVE INTERDEPENDENCE***

- limit available materials
- limit time
- assure that everyone has a unique set of information (jigsawing)
- pick students to make the presentation just prior to the start of the presentation
- give group grades/evaluations (with caution)
- assign rotating roles or responsibilities
- select a single paper or product from the group to evaluate
- use role playing
- give group rewards for group accomplishments
- have students within the group plan individual responsibilities and document their fulfillment
- design a challenge which is too complex or comprehensive for one person
- use an open class format which encourages exchanging of information among groups
- set decision-making criteria for small group work which necessitates inter-group or whole class decision-making

### *Thoughts on Individual Accountability*

How are you going to hold each individual accountable for their contribution? How are you going to make an effort to eliminate “hogs” (those who take over and want to do everything) and “logs” (those who just lay there and want to do nothing)?

- ask them to keep project journals that keeps track of their contributions. If they can't tell you what they have contributed then they can't get credit.
- use self and peer assessments
- debrief in terms of who contributed what to their effort
- let “hogs” know that they are as guilty as “logs” if they do everything and don't make every effort to delegate and share tasks
- use traditional quizzes or tests after the challenge

# Challenge

*Knowledge Standard*

**Title**

*Skill/Disposition Standard*

**Investigative Question or Issue:**

**Challenge:**

**Product Criteria:**

**Process Criteria: (Knowledge, Skill, Disposition)**

<b>Product Quality Checklist/K-C</b>
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Date: \_\_\_\_\_ Class Period: \_\_\_\_\_

Product Author(s):	Product Title/Name:	Evaluator Name(s):
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Observed	We will know the _____ is of high quality if...	Possible Points	Rating
	<i>TOTALS</i>		

<b>Product features to KEEP...</b>     	<b>Product features to consider for CHANGE...</b>     
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<h2 style="margin: 0;">Product Quality Checklist/K-C</h2>
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**Date:** \_\_\_\_\_ **Class Period:** \_\_\_\_\_

Product Author(s):	Product Title/Name:  <b>EBD/SPEC EVENT</b>	Evaluator Name(s):
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Observed	<b>We will know the <u>EBD/SPEC EVENT</u> is of high quality if it...</b>	Possible Points	Rating
	1. Targets a state or local standard and indicator		
	2. Targets one life skill/disposition and indicator		
	3. Has an Essential Question that clearly puts the issue in perspective		
	4. Articulates a clear product a/o exhibition		
	5. Articulates what the group size/makeup will be		
	6. Embeds conditions for interdependence		
	7. Includes conditions for individual accountability		
	8. Anticipates the needed resources (materials, technology, and time)		
	9. Includes opportunities for choice/ownership		
	10. Shows consideration for opportunities for parental involvement		
	11. Describes what will be accepted as evidence in either the product or process of knowledge and understanding being achieved		
	12. Describes what will be accepted as evidence in product or process of the skill or disposition being exhibited?		
	13. Includes clear criteria for a product of "good quality" (rule, form, content, impact)		
	14. Includes at least one form of reflection (self a/o group)		
	15. Creates a safe learning community		
	16. Includes a form of student exhibition or presentation of the product and anticipates who the audience will be		
	17. Anticipates the teacher's role as coach		
	18. Shows a clear connection to past or future learning		
	19. Anticipates what needs to be done to prepare learners for the experience? (Community builder, hook, anticipatory set, "pre-lecture", conventional test, etc.)		
	<i>TOTALS</i>		

<b>Product features to KEEP...</b>	<b>Product features to consider for CHANGE...</b>
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